

# **Attachment 3:**

Description of Training and  
Competency Testing

**RESQPOD SAMPLE WRITTEN EVALUATION**

On the answer sheet provided, put an "X" over the one correct answer.  
**DO NOT WRITE ON THE TEST.**

1. Lowering the pressure within the chest (creating a vacuum) during CPR decompression:
  - a. Helps to draw more blood from the body back into the chest.
  - b. Makes it more difficult for the patient to breathe.
  - c. Makes compressing the chest easier.
  - d. Decreases the risk of rib fractures during CPR.
  - e. Causes oxygen saturation levels in the blood to drop.
2. The ResQPOD prevents:
  - a. The rescuer from actively ventilating the patient.
  - b. The patient from exhaling.
  - c. Air from being selectively drawn into the chest during decompressions.
  - d. Air from entering the stomach.
  - e. Rib fractures.
3. If a pulse returns, the ResQPOD should be:
  - a. Turned off by flipping the light switch to the OFF position.
  - b. Left in place.
  - c. Turned so that air flows through in the opposite direction.
  - d. Given to the patient as a souvenir of their resuscitation.
  - e. Removed immediately from the ventilation circuit.
4. If an end tidal carbon dioxide (ETCO<sub>2</sub>) detector is used with the ResQPOD, place the detector:
  - a. Between the facemask and the ResQPOD.
  - b. Between the endotracheal (ET) tube and the ResQPOD.
  - c. Between the ResQPOD and the ventilation source (e.g. bag-valve resuscitator).
  - d. Between the Combitube and the ResQPOD.
  - e. ETCO<sub>2</sub> detectors cannot be used while the ResQPOD is in place.
5. The ResQPOD's timing assist lights:
  - a. Blink on and off @ at the recommended ventilation rate for a secured airway (e.g. ET tube).
  - b. Can be used as a guide to the proper compression rate.
  - c. Encourage rescuers to ventilate at the proper rate.
  - d. Are activated by removing the clear plastic tab and moving the switch to the ON position.
  - e. All of the above are true.
6. When the ResQPOD is used on a facemask, it is VERY important to:
  - a. Turn on the ventilation timing lights.
  - b. Maintain a tight face seal with the mask at all times, especially during chest compressions.
  - c. Have an ETCO<sub>2</sub> detector in place.
  - d. Hyperventilate if the patient has experienced an unwitnessed arrest.
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7. If the ResQPOD becomes filled with fluid or secretions during use:
  - a. Clear it by running tap water through it.
  - b. Suction the ResQPOD out with a suction unit.
  - c. Discontinue use immediately and do not reuse.
  - d. Remove the ResQPOD and clear it by shaking it or blowing through it with the ventilation source.
  - e. Clear it by flushing with normal saline.
8. Regarding the administration of endotracheal medications with the ResQPOD in place:
  - a. The ResQPOD should be disconnected from the ET tube and the meds given directly down the tube.
  - b. Medications will not be required during ResQPOD use.
  - c. Medications should be injected into the ResQPOD and then ventilation continued.
  - d. Only epinephrine should be given endotracheally during ResQPOD use.
  - e. Medications should always be given through the ResQPOD, even if an IV is in place.
9. Which of the following make CPR less effective?
  - a. Hyperventilation.
  - b. Extended chest compression interruption.
  - c. Ventilations of long duration.
  - d. Incomplete chest wall recoil.
  - e. All of the above make CPR less effective.
10. To avoid inadequate CPR compression/decompression due to fatigue, rescuers should:
  - a. Encourage each other with high fives.
  - b. Compress at a slower rate.
  - c. Ventilate more often.
  - d. Rotate compression duty every 2-3 minutes or sooner if tired.
  - e. Compress to a more shallow depth.

Name \_\_\_\_\_ Date \_\_\_\_\_

Agency \_\_\_\_\_

## WRITTEN EVALUATION

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## PRACTICAL EVALUATION

Performed	Did Not Perform	CPR with the ResQPOD
		Verbalizes appropriate indications and contraindications per agency protocol
		Initiates use of ResQPOD during facemask ventilation with CPR
		Uses two-rescuer technique to manage airway and maintain tight face seal <b>during chest compressions</b>
		30:2 compression to ventilation ratio with synchronous compressions
		Intubates w/ ET tube, confirms placement, secures with proper tube restraint device and moves ResQPOD to ET tube
		Turns on ventilation timing lights and ventilates over one sec with lights
		Switches to asynchronous compressions/ventilations once airway secured
		Compressions - appropriate depth (1.5 – 2") and rate (100/min) and <b>complete chest wall recoil</b>
		Demonstrates how to clear ResQPOD of secretions
		Removes ResQPOD with return of spontaneous pulse

Comments \_\_\_\_\_

O Satisfactory    O Needs more practice    Instructor signature \_\_\_\_\_



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# ResQPOD<sup>®</sup>

## Circulatory Enhancer



*Strengthening the Chain of Survival*



**ADVANCED CIRCULATORY SYSTEMS, INC.**

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# Objectives



Adequate blood flow to vital organs during cardiac arrest is the key to patient survival and quality of life!

**① Learn to use the ResQPOD**

**Improved Patient Care &  
Opportunity for Survival**

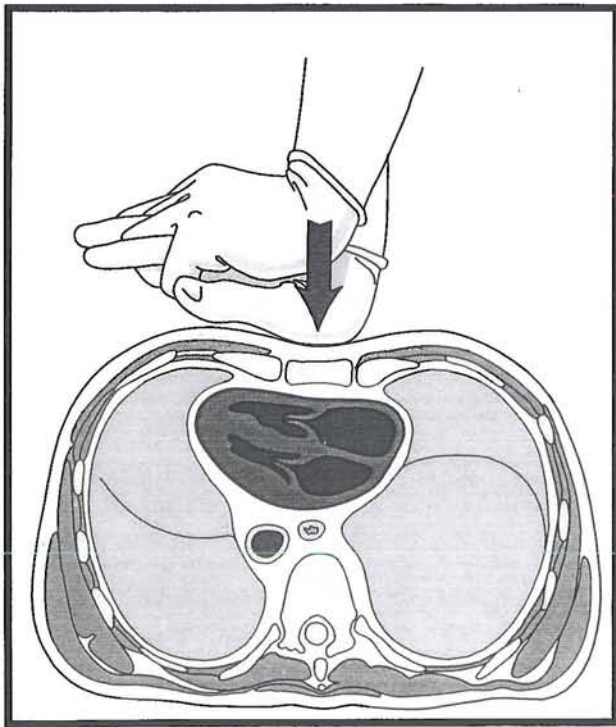
**② Perform optimal CPR**





# How CPR Causes Forward Blood Flow

## Compression Phase



## Cardiac Pump Theory

- Heart is squeezed between sternum & spine.

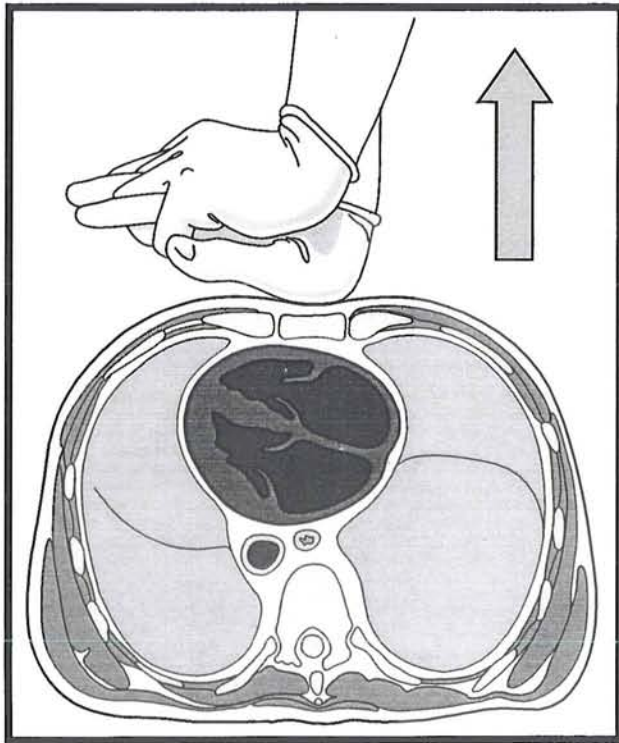
## Thoracic Pump Theory

- Chest acts as a bellows: compression causes a **positive pressure** that forces blood out of the heart (cardiac output).



# How CPR Causes Forward Blood Flow

## Decompression Phase



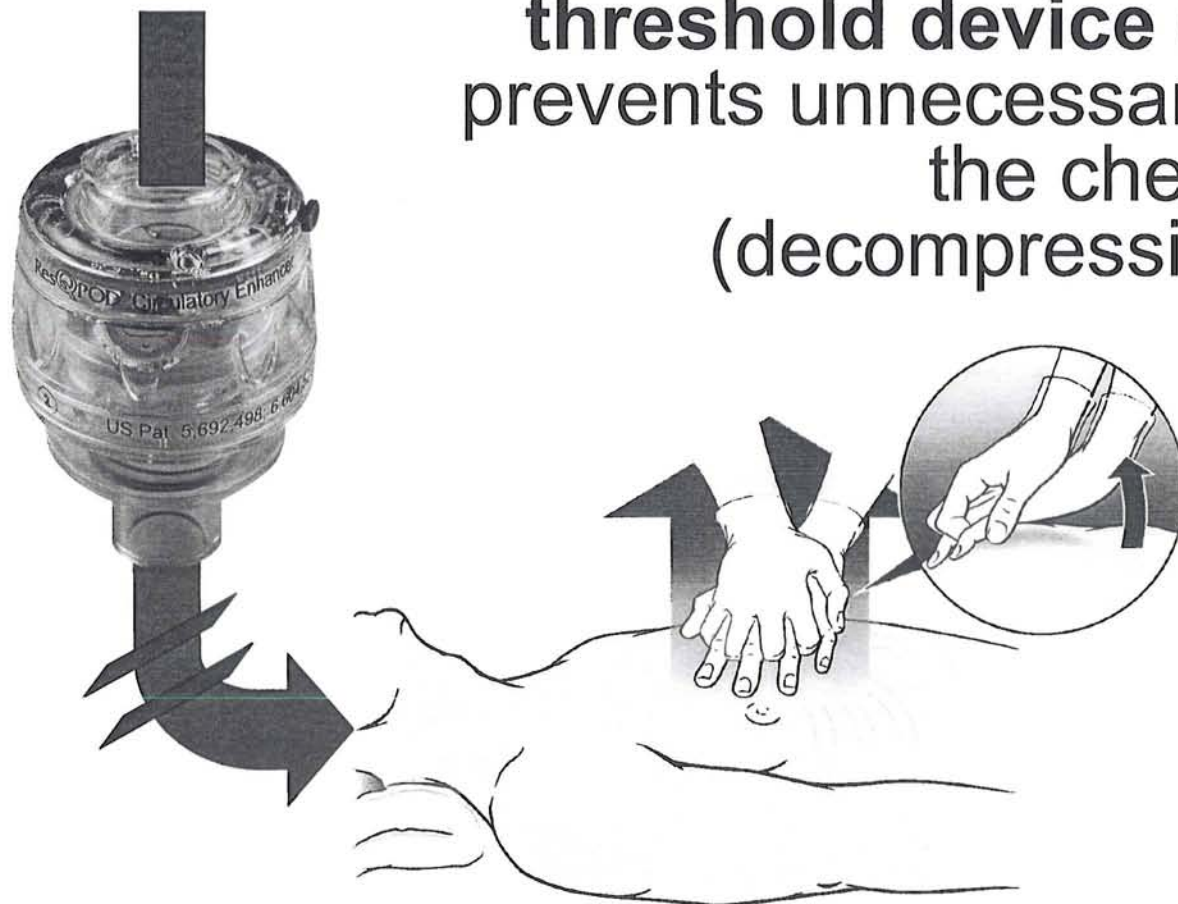
- A small, but important, vacuum (**negative pressure**) forms in the chest relative to atmospheric pressure, drawing some blood back into the heart.
- The more blood that returns to the heart (preload), the more that is circulated forward (cardiac output) on the next compression.
- Conventional CPR is inherently inefficient because the vacuum is quickly equalized through an open airway.





# ResQPOD® Circulatory Enhancer

The ResQPOD is an **impedance threshold device (ITD)**. It selectively prevents unnecessary air from entering the chest during the recoil (decompression) phase of CPR, which leads to...



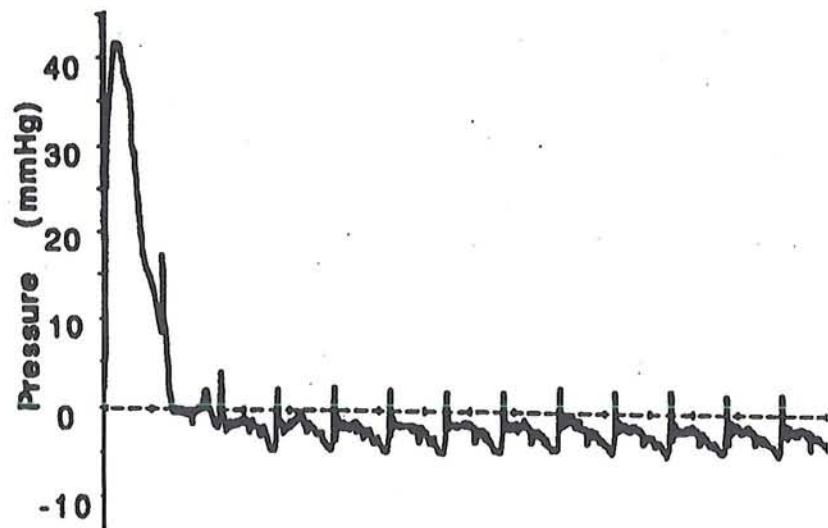




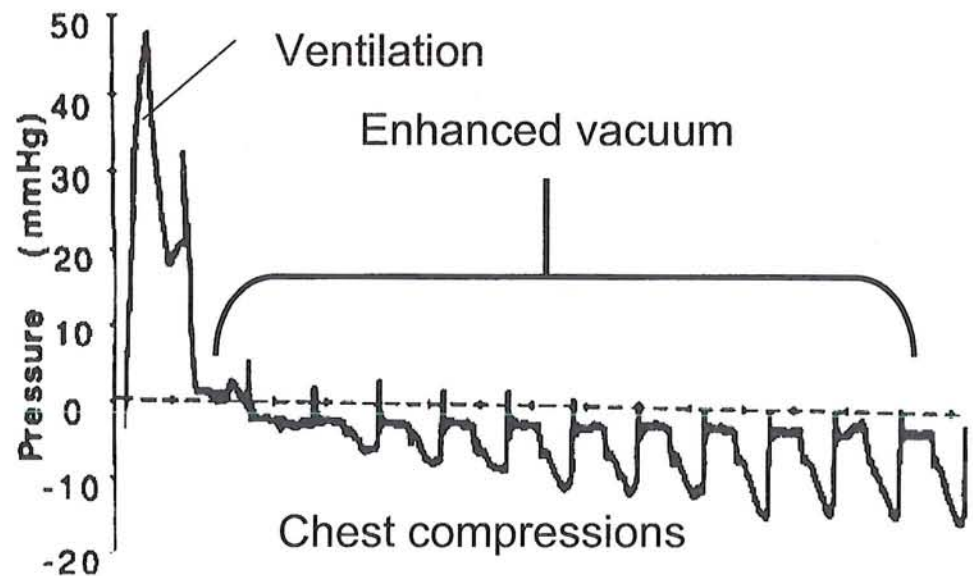
# ResQPOD® Circulatory Enhancer

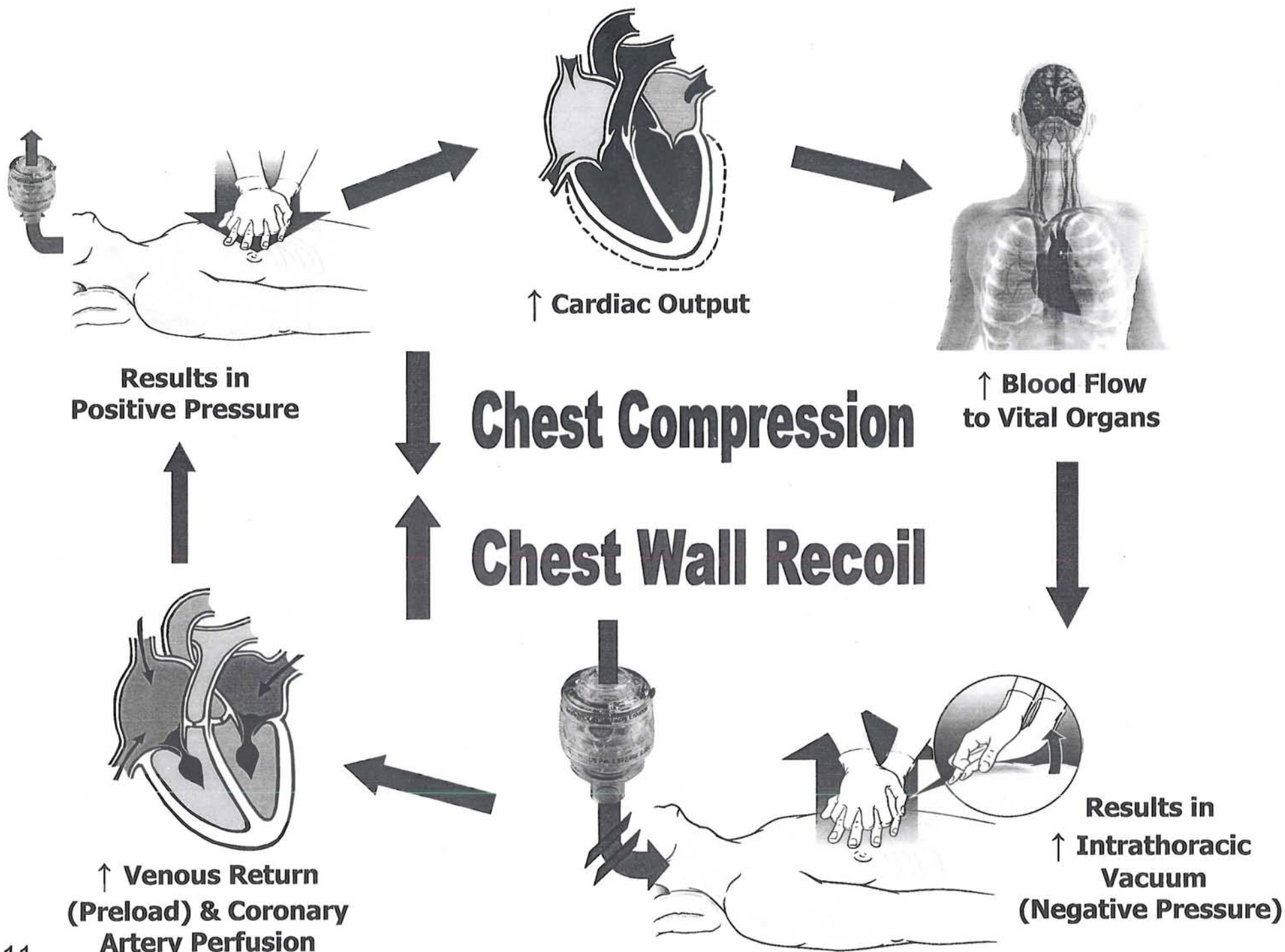
Greater vacuum (negative pressure) in the chest during chest compressions, which leads to...

**Conventional CPR**



**Conventional CPR w/ ResQPOD**

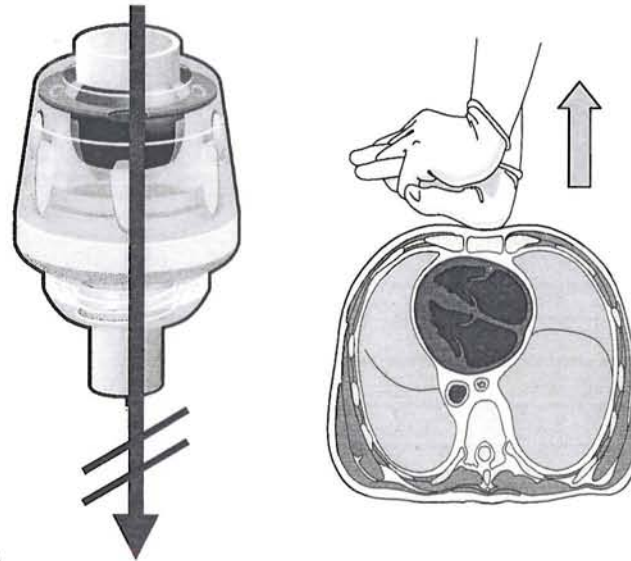






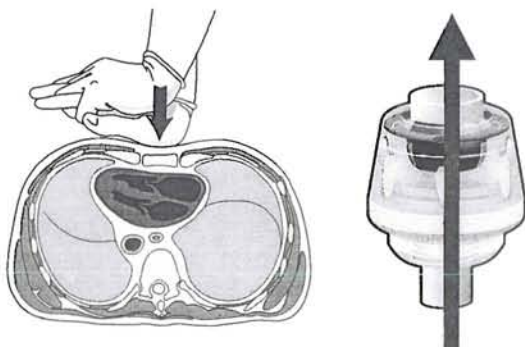
# Airflow Through the ResQPOD

## Chest Decompression (Chest Wall Recoil)



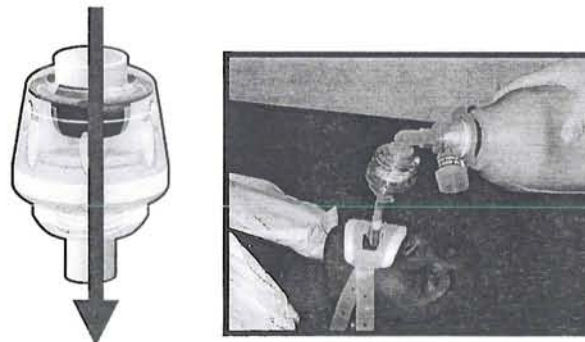
ResQPOD prevents the influx of unnecessary respiratory gases into the chest, enhancing the negative pressure (vacuum) in the chest.

### Chest Compression



Patient can freely exhale.

### Patient Ventilation



Patient can be freely ventilated.

### Spontaneous Breathing



Air will enter patient if at least -10 cmH<sub>2</sub>O pressure is generated during breathing.





# Device Features

## Ventilation Port

### Timing Assist Lights

Promote proper ventilation & compression rate

### Timing Assist Lights

#### ON/OFF Switch

Turns timing assist lights on & off

### Atmospheric Pressure Sensor System

Provides selective impedance to inspiratory air flow

### Safety Check Valve

Enables inspiration @ -10 cmH<sub>2</sub>O with spontaneous respiration



## Patient Port



## Clinical Features & Benefits

- Rapidly increases circulation non-invasively & without fluids or medications
- Timing assist lights promote proper ventilation rate, avoiding deadly hyperventilation
- Latex free
- Compatible with variety of airway adjuncts (e.g. ET tube, facemask) and any method of CPR
- No resistance to rescuer ventilation or patient exhalation





# Indications/Contraindications

## Indications

- Home
- Hospital
- Clinic
- Emergency Care

For medical conditions where a temporary increase in blood circulation is desired, as directed by a physician or licensed practitioner.

## Contraindications

- Dilated cardiomyopathy
- Congestive heart failure
- Pulmonary hypertension
- Flail chest
- Aortic stenosis
- Chest pain
- Shortness of Breath

*The generally cleared indication for the ResQPOD is for a temporary increase in blood circulation during emergency care, hospital, clinic and home use. Studies are ongoing in the United States to evaluate the long-term benefit of the ResQPOD for indications related to patients suffering from cardiac arrest, hypotension during dialysis and severe blood loss. This presentation is not intended to imply specific outcome-based claims not yet cleared by the US FDA.*





## Compatibility with Other Devices

### Ventilation Sources

- Demand-valve or transport ventilator
- Bag-valve resuscitator
- Mouth to mask

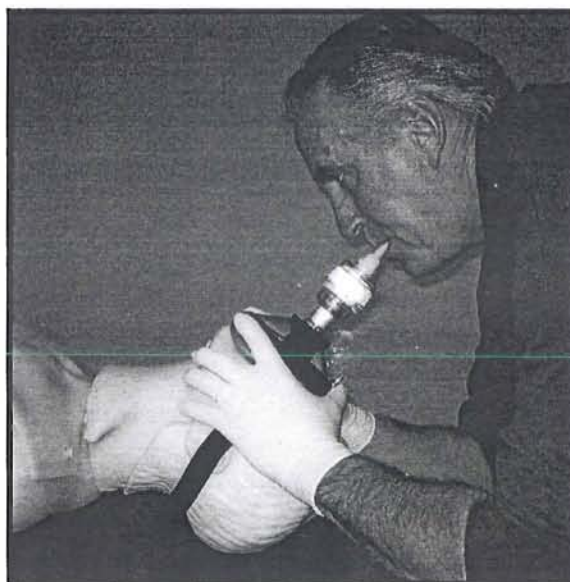
### Airway Adjuncts

- Facemask  
(with good sealing cushion)
- Secured airway  
(e.g. ET tube, Combitube)



# Using the ResQPOD on a Facemask

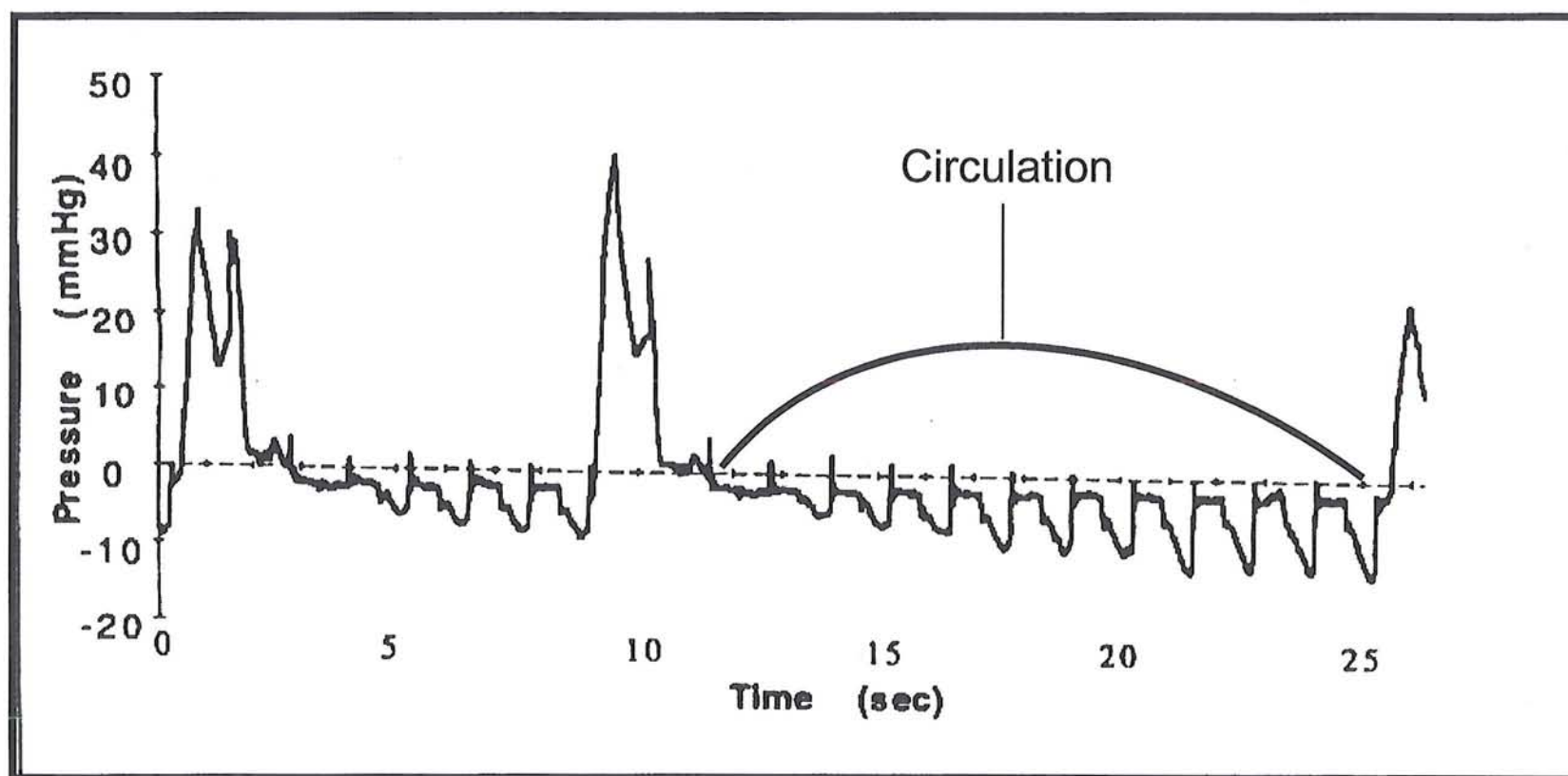
1. Connect ResQPOD to facemask.
2. Open airway; establish & maintain tight face seal during chest compressions. A 2-handed technique or head strap is strongly recommended.
3. Connect ventilation source to ResQPOD.
4. Perform CPR @ recommended compression to ventilation ratio.







# Developing Vacuum



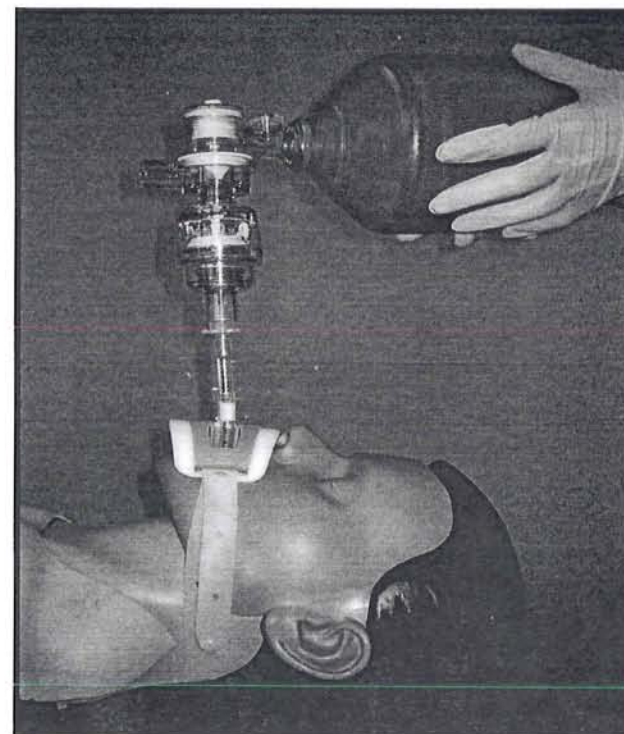
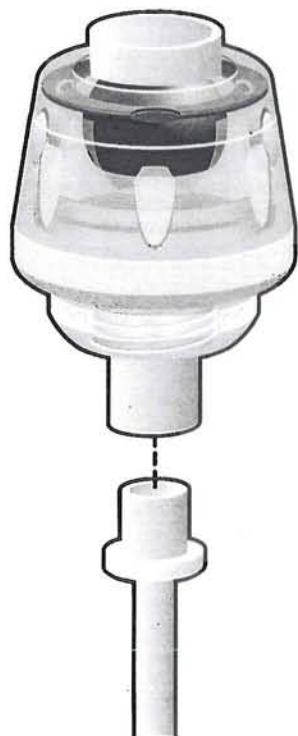
Standard CPR with the ResQPOD





# Using the ResQPOD on an ET Tube

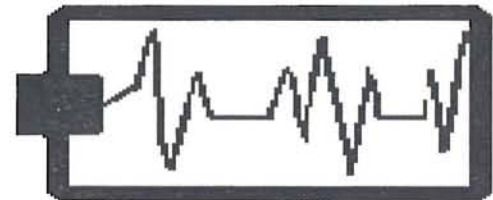
1. Confirm tube placement; secure with commercial tube restraint.
2. Connect ResQPOD to ET tube.
3. Connect ventilation source to ResQPOD.
4. Perform continuous chest compressions.
5. Turn on timing assist lights. Ventilate asynchronously @ timing light flash rate.
6. Administer ET meds directly into ET tube.
7. Place ETCO<sub>2</sub> detector between ResQPOD & ventilation source.





## ResQPOD Use

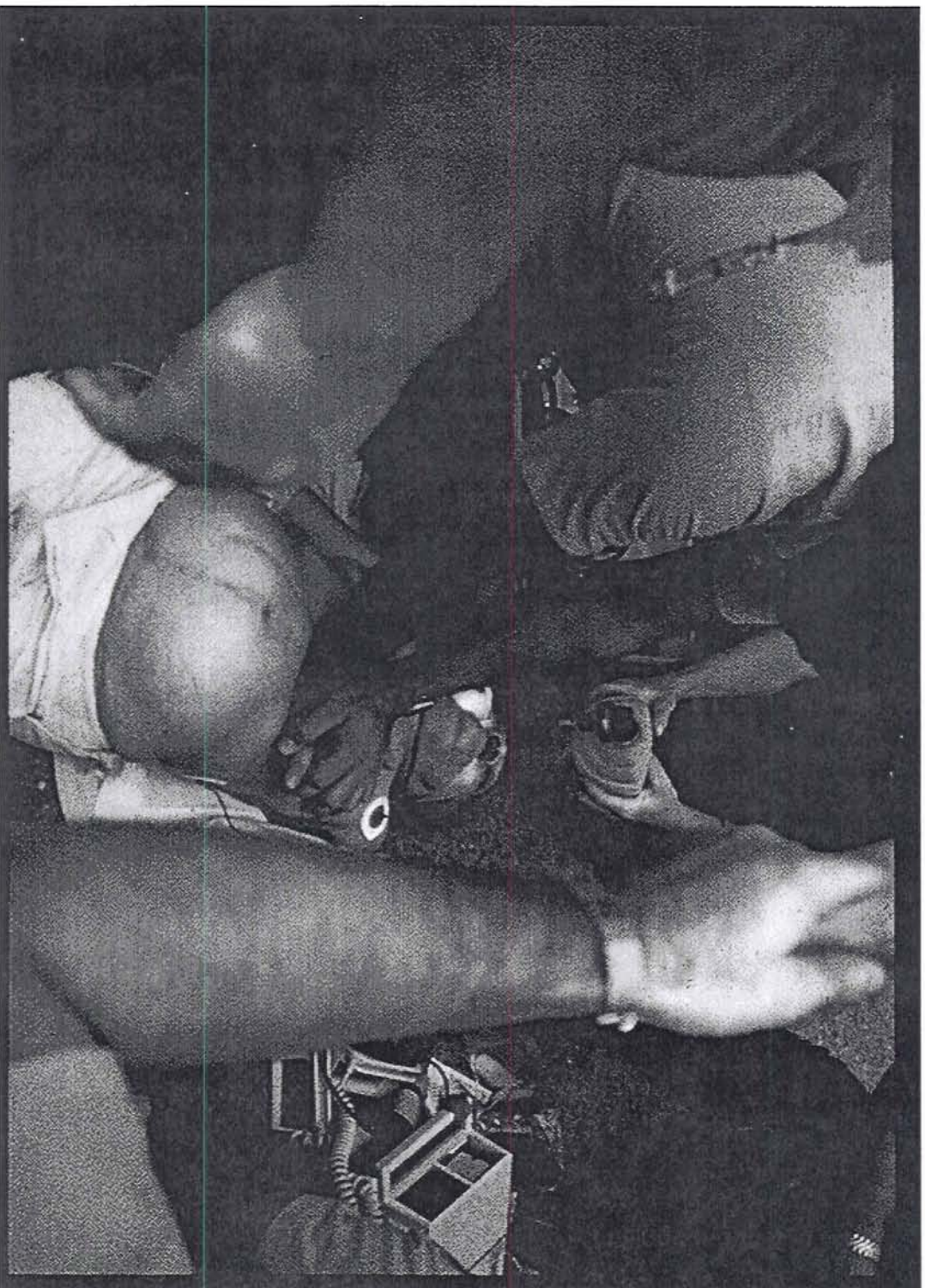
- Remove ResQPOD as soon as spontaneous pulse returns.
- Clear fluids or secretions from the ResQPOD by shaking it or blowing it out using the ventilation source.
- Timing assist lights can be used to guide compression/release rate; compression rate of 100/min = 10 compressions/light flash.
- Give the ResQPOD the best opportunity to work – do the most optimal CPR!







# Performing Optimal CPR

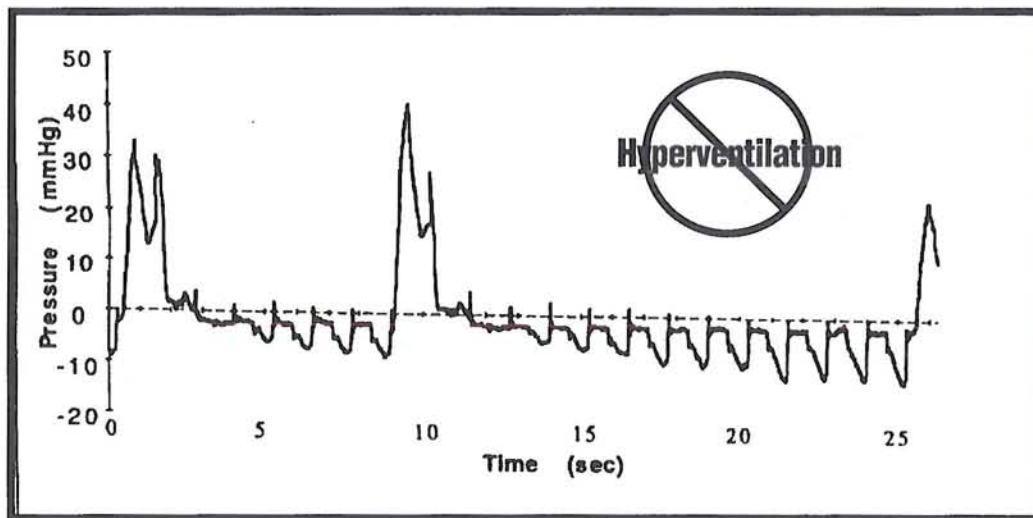






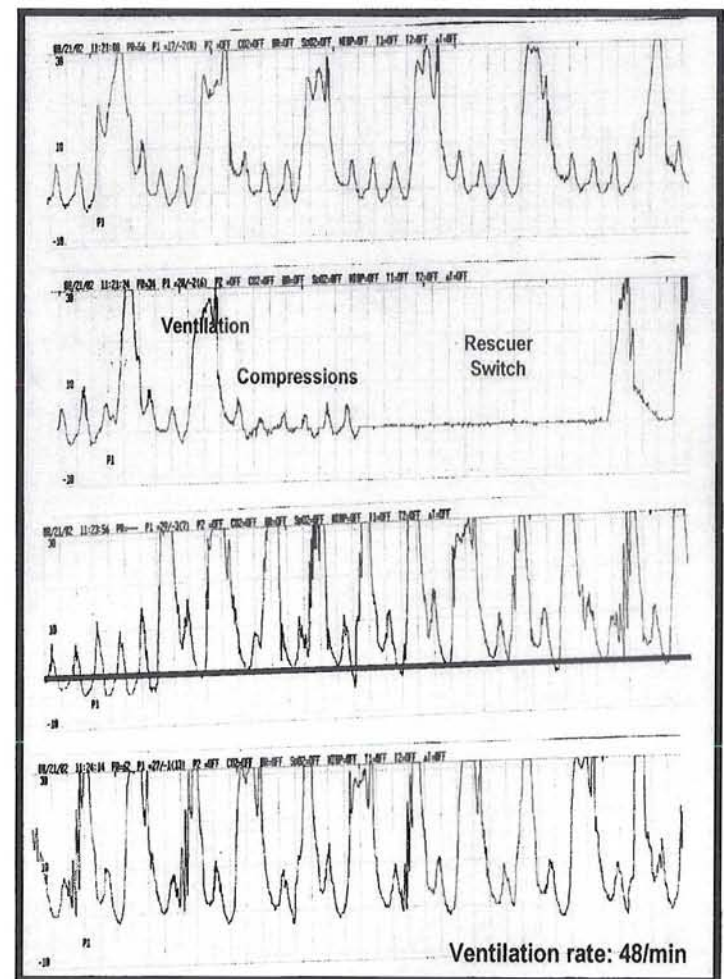
# Hyperventilation

## Standard CPR with Inspiratory Impedance



Ventilating patients too often and/or over a long duration prevents the development of a vacuum (negative pressure) in the chest, which in turn, compromises forward blood flow to vital organs.

## Example of Hyperventilation





# Porcine Survival Study

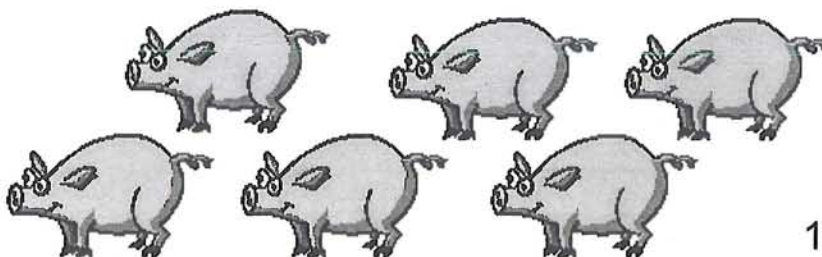
- Seven pigs
- V-fib for 6 min
- Comp: 100/min
- **Vent: 30/min**
- CPR for 6 min
- Shock(s) as necessary

**Survival: 1/7 (14%)**



- Seven pigs
- V-fib for 6 min
- Comp: 100/min
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- CPR for 6 min
- Shock(s) as necessary

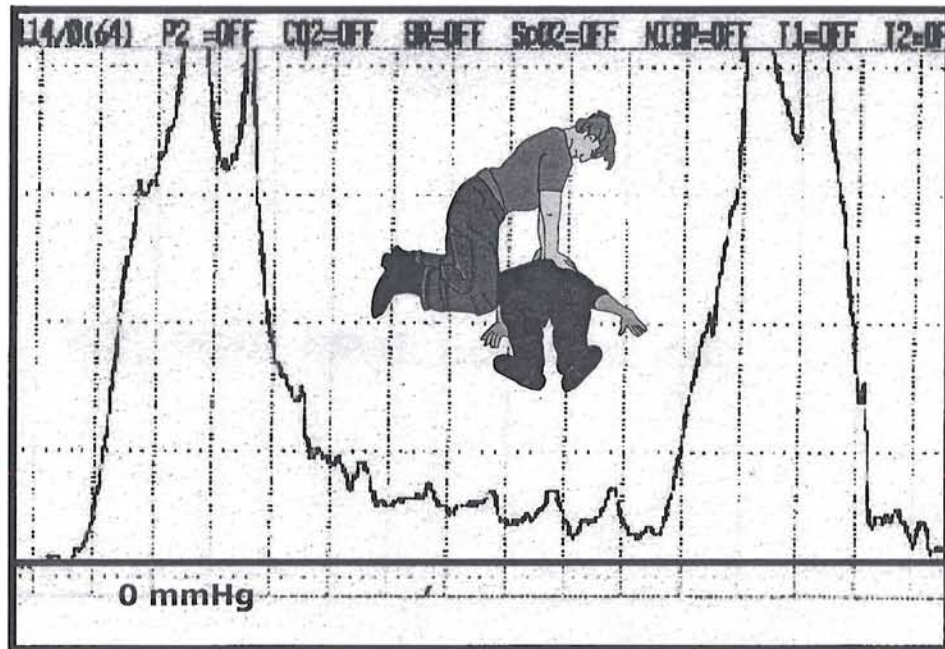
**Survival: 6/7 (86%\*)**



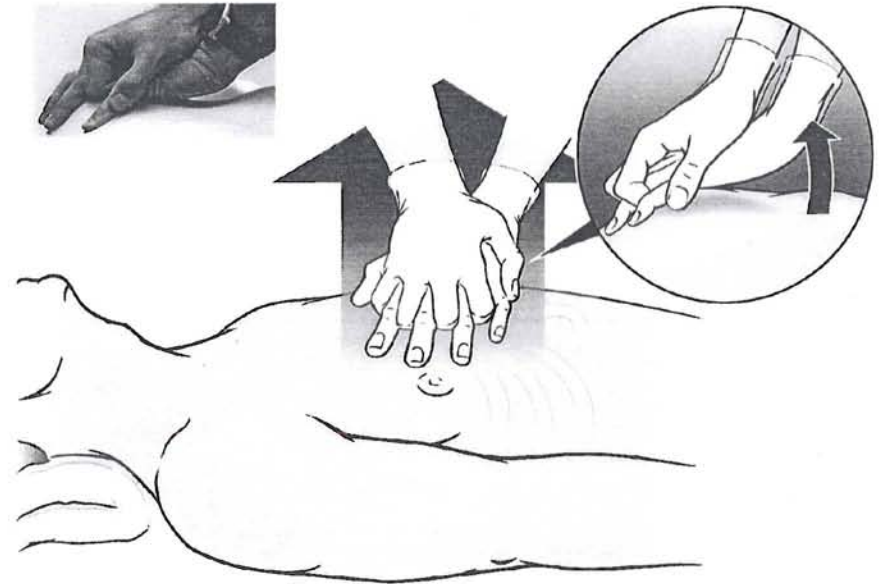




# Incomplete Chest Wall Recoil



Incomplete chest wall recoil after each compression significantly compromises cerebral and coronary perfusion pressures during CPR.<sup>10</sup>



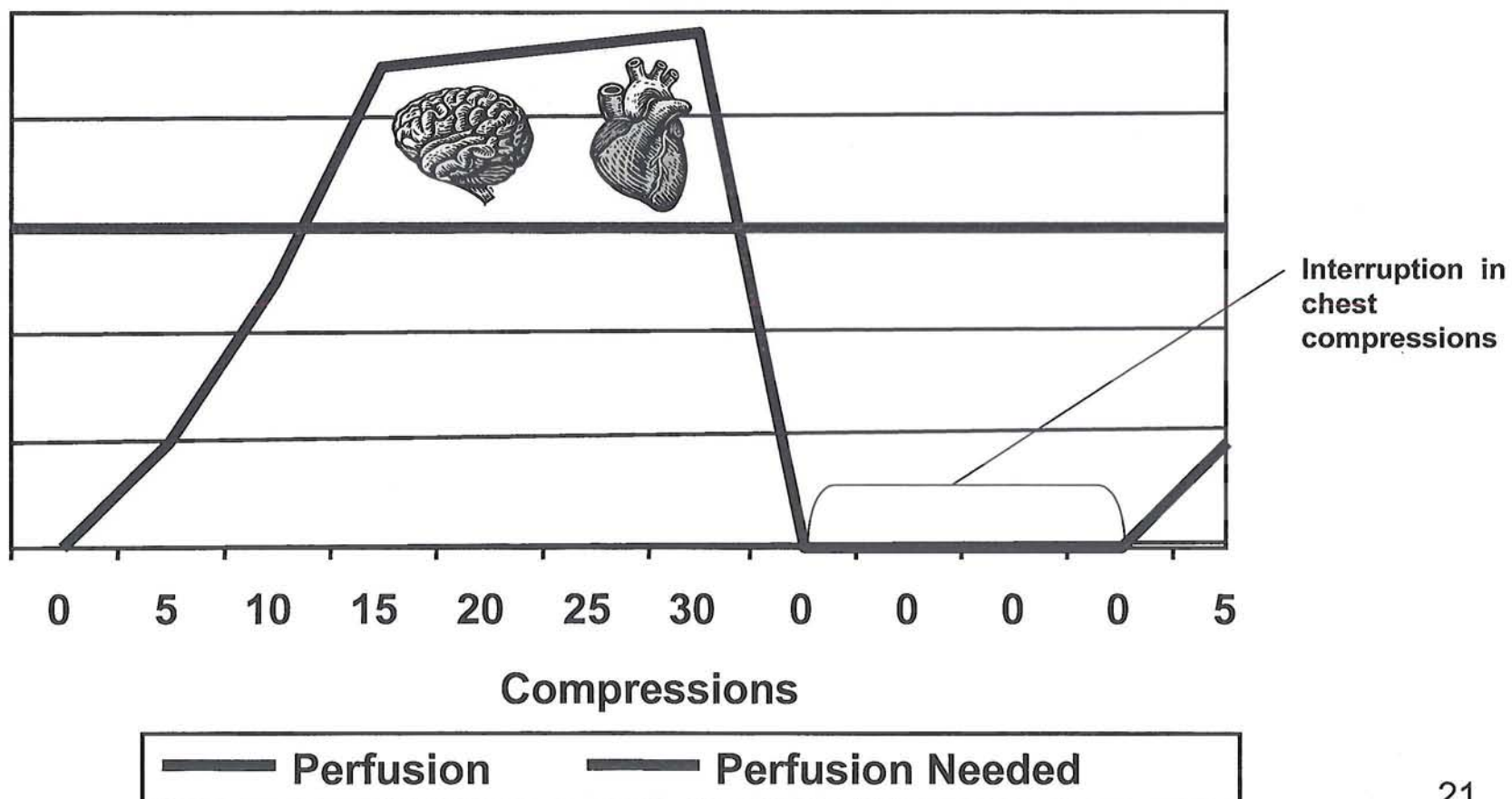
Assure that chest wall recoils completely after each compression in order to maximize the formation of the vacuum that promotes preload. 20





# CPR Delays & Interruptions

## Blood Flow to Vital Organs During Chest Compressions





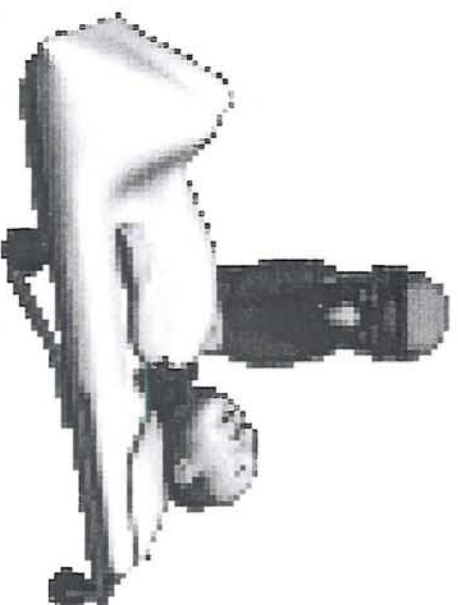
## Keys to Optimal CPR

- Begin using the ResQPOD and performing chest compressions as soon as cardiac arrest is confirmed.
- Ventilate over 1 second (until chest rise) and DO NOT hyperventilate (BLS & ALS).
- Assure complete chest wall recoil.
- Avoid unnecessary delays or interruptions in chest compressions.
- Rotate duties frequently to avoid fatigue.



## The End

# Questions?





7. If the ResQPOD becomes filled with fluid or secretions during use:
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Name \_\_\_\_\_ Date \_\_\_\_\_

Agency \_\_\_\_\_

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  - b. Medications will not be required during ResQPOD use.
  - c. Medications should be injected into the ResQPOD and then ventilation continued.
  - d. Only epinephrine should be given endotracheally during ResQPOD use.
  - e. Medications should always be given through the ResQPOD, even if an IV is in place.
9. Which of the following make CPR less effective?
  - a. Hyperventilation.
  - b. Extended chest compression interruption.
  - c. Ventilations of long duration.
  - d. Incomplete chest wall recoil.
  - e. **All of the above make CPR less effective.**
10. To avoid inadequate CPR compression/decompression due to fatigue, rescuers should:
  - a. Encourage each other with high fives.
  - b. Compress at a slower rate.
  - c. Ventilate more often.
  - d. **Rotate compression duty every 2-3 minutes or sooner if tired.**
  - e. Compress to a more shallow depth.



**RESQPOD SAMPLE WRITTEN EVALUATION ANSWER KEY**

1. Lowering the pressure within the chest (creating a vacuum) during CPR decompression:
  - a. **Helps to draw more blood from the body back into the chest.**
  - b. Makes it more difficult for the patient to breathe.
  - c. Makes compressing the chest easier.
  - d. Decreases the risk of rib fractures during CPR.
  - e. Causes oxygen saturation levels in the blood to drop.
2. The ResQPOD prevents:
  - a. The rescuer from actively ventilating the patient.
  - b. The patient from exhaling.
  - c. **Air from being selectively drawn into the chest during decompressions.**
  - d. Air from entering the stomach.
  - e. Rib fractures.
3. If a pulse returns, the ResQPOD should be:
  - a. Turned off by flipping the light switch to the OFF position.
  - b. Left in place.
  - c. Turned so that air flows through in the opposite direction.
  - d. Given to the patient as a souvenir of their resuscitation.
  - e. **Removed immediately from the ventilation circuit.**
4. If an end tidal carbon dioxide (ETCO<sub>2</sub>) detector is used with the ResQPOD, place the detector:
  - a. Between the facemask and the ResQPOD.
  - b. Between the endotracheal (ET) tube and the ResQPOD.
  - c. **Between the ResQPOD and the ventilation source (e.g. bag-valve resuscitator).**
  - d. Between the Combitube and the ResQPOD.
  - e. ETCO<sub>2</sub> detectors cannot be used while the ResQPOD is in place.
5. The ResQPOD's timing assist lights:
  - a. Blink on and off @ at the recommended ventilation rate for a secured airway (e.g. ET tube).
  - b. Can be used as a guide to the proper compression rate.
  - c. Encourage rescuers to ventilate at the proper rate.
  - d. Are activated by removing the clear plastic tab and moving the switch to the ON position.
  - e. **All of the above are true.**
6. When the ResQPOD is used on a facemask, it is VERY important to:
  - a. Turn on the ventilation timing lights.
  - b. **Maintain a tight face seal with the mask at all times, especially during chest compressions.**
  - c. Have an ETCO<sub>2</sub> detector in place.
  - d. Hyperventilate if the patient has experienced an unwitnessed arrest.
  - e. Check for a pulse during chest compressions.